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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.        | CONFIRMATION NO. |
|---|-------------|----------------------|----------------------------|------------------|
| 10/759,801  | 01/16/2004  | Hongwen Li           | 006353/P1/DSM/LOW K        | 8276             |
| 41161   | 7590        | 10/11/2006           |                            |                  |
| DUGAN & DUGAN, PC<br>55 SOUTH BROADWAY<br>TARRYTOWN, NY 10591 |             |                      | EXAMINER<br>ZERVIGON, RUDY |                  |
|   |             |                      | ART UNIT                   | PAPER NUMBER     |

1763

DATE MAILED: 10/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/759,801

Applicant(s)

LI ET AL.

Examiner

Rudy Zervigon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1 and 2 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant's sole statement with regard to the amended claim text add states: "The module controller 120 and/or the EMC's 102a-116a may be employed to monitor tool health." [0334]. Applicant has not provided a teaching of what "tool health" is.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1 and 2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. The term "tool health" in claims 1 and 2 is a relative term which renders the claim indefinite. The term "tool health" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. What is good or bad health for a tool?

***Claim Rejections - 35 USC § 102/103***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Fairbairn, Kevin P. et al. (US 20020155629 A1). Fairbairn teaches a system (Figure 3, 9C) configured to pattern a substrate comprising: a lithography subsystem (902; Figure 9C, [0069]) configured to form a patterned masking layer on the substrate; an etch subsystem (902; Figure 9C, [0069]) configured to receive the substrate after the patterned masking layer has been formed thereon and to etch the substrate to form one or more etched features on the substrate, the etch subsystem (902; Figure 9C, [0069]) having an integrated inspection system (Figure 3, [0037]) configured to inspect the substrate; and a controller (320, 330, 340; Figure 3, [0037]) coupled to the lithography subsystem (902; Figure 9C, [0069]) and the etch subsystem (902; Figure 9C, [0069]), the controller (320, 330, 340; Figure 3, [0037]) having computer program code (Figure 4a-b) configured to communicate with each subsystem (901-904, 909; Figure 3, 9C) and to perform the steps of: receiving information about the substrate (360, 310; Figure 3) from the integrated inspection system (Figure 3, [0037]) of the etch subsystem (902; Figure 9C, [0069]); and adjusting a stepper focus ([0031], [0032], [0035]) of the lithography subsystem (902; Figure 9C, [0069]) during formation of a subsequent patterned masking layer based at least in part on the information received from the etch subsystem (902; Figure 9C, [0069]) and monitoring the health of the etch subsystem (902; Figure 9C, [0069]) based on the information received from the etch subsystem (902; Figure 9C, [0069]), as claimed by claim 1

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Fairbairn further teaches a system (Figure 3, 9C) configured to pattern a substrate comprising: a low K dielectric deposition subsystem (901-904, 909; Figure 3, 9C) configured to deposit one or more low K dielectric layers on the substrate, the low K dielectric deposition subsystem (901-904, 909; Figure 3, 9C) having an integrated inspection system (Figure 3, [0037]) configured to inspect the substrate; an etch subsystem (902; Figure 9C, [0069]) configured to receive the substrate after one or more low K dielectric layers have been deposited on the substrate and to etch the substrate to form one or more etched features in the one or more low K dielectric layers formed on the substrate, the etch subsystem (902; Figure 9C, [0069]) having an integrated inspection system (Figure 3, [0037]) configured to inspect the substrate; and a controller (320, 330, 340; Figure 3, [0037]) coupled to the low K dielectric deposition subsystem (901-904, 909; Figure 3, 9C) and the etch subsystem (902; Figure 9C, [0069]), the controller (320, 330, 340; Figure 3, [0037]) having computer program code (Figure 4a-b) configured to communicate with each subsystem (901-904, 909; Figure 3, 9C) and to perform the steps of: receiving information about the substrate from the integrated inspection system (Figure 3, [0037]) of the low K dielectric deposition subsystem (901-904, 909; Figure 3, 9C); determining an etch process to perform within the etch subsystem (902; Figure 9C, [0069]) based at least in part on the information received from the inspection system (Figure 3, 9C) of the low K dielectric deposition subsystem (901-904, 909; Figure 3, 9C); directing the etch subsystem (902; Figure 9C, [0069]) to etch at least one low K dielectric layer on the substrate based on the etch process; receiving information about the substrate from the integrated inspection system (Figure 3, [0037]) of the etch subsystem (902; Figure 9C, [0069]); and adjusting etching of the substrate in real-time based on the information received from the etch subsystem (902; Figure 9C, [0069])

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and monitoring the health of the etch subsystem (902; Figure 9C, [0069]) based on the information received from the etch subsystem (902; Figure 9C, [0069]), as claimed by claim 2 – Applicant’s “low K dielectric” claim requirements is are claim requirements of intended use. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

As noted above, Applicant’s “tool health” is a relative term rendering the claims indefinite. As a result, it is uncertain if Fairbairn’s apparatus can measure Applicant’s ambiguous term “tool health”.

In the event Fairbairn’s apparatus is deemed not to anticipate measuring “tool health”, it would have been obvious to one of ordinary skill in the art at the time the invention was made to translate Fairbairn’s measured parameters (320, 330, 340; Figure 3, 4a, 4b, [0037]) into a “tool health”.

Motivation to translate Fairbairn’s measured parameters (320, 330, 340; Figure 3, 4a, 4b [0037]) into a “tool health” is for controlling critical dimension features on processed substrates as taught by Fairbairn ([0001]).

***Response to Arguments***

8. Applicant's arguments with respect to claims 1 and 2 have been considered but are moot in view of the new grounds of rejection.

***Conclusion***

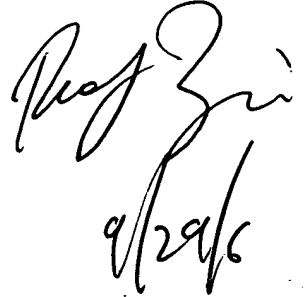
9. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272.1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (703) 872-9306. Any

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Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.



Handwritten signature of Parviz Hassanzadeh, dated 9/29/16.